

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES

In re application of)	
)	
Den Boestert et al)	
)	
Serial No. 10/825,484)	Group Art Unit: 1764
)	
Filed April 14, 2004)	Examiner: R. Boyer
)	
PROCESS TO SEPARATE COLOUR BODIES)	April 14, 2008
AND/OR ASPHALTENIC CONTAMINANTS FROM)	
<u>A HYDROCARBON MIXTURE</u>)	

COMMISSIONER FOR PATENTS
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

APPEAL BRIEF

On January 8, 2008, the Applicant filed a Notice of Appeal from the final rejection of claim 1 mailed October 4, 2007. On January 24, 2008, the Panel mailed their Decision from Pre-Appeal Brief Review, which stated to proceed to the Board and that Claim 1 stands rejected. Please charge any necessary fee for this brief, any necessary extension fees, and any other required fees to Shell Oil Company Deposit Account No. 19-1800.

Real Party in Interest

The Real Party in Interest in this appeal is the Assignee, Shell Oil Company. The inventor assigned the application to Shell Oil Company.

Related Appeals and Interferences

There are no known related appeals or interferences.

Status of Claims

Claims 1 through 16 were originally presented for examination.

Claim 1 was finally rejected by the Office Action mailed October 4, 2007, under 35 USC §102, as being anticipated by Moller (WO 01/10540 A2)(“Moller”); and under 35 USC §103(a), as being unpatentable over Cederlof (WO 03/035803)(“Cederlof”) in view of Moller, or vice versa.

Applicant filed a Notice of Appeal and Pre-Appeal Brief Request for Review on January 8, 2008.

The Panel Decision from Pre-Appeal Brief Review was mailed January 24, 2008. The decision was to proceed to the Board and that Claim 1 stands rejected.

The claim which is under consideration in this appeal is Claim 1, as shown in the Appendix hereto.

Claim 1 is being appealed by this appeal brief.

Claims 2-16 are dependent on Claim 1. They are not being appealed by this appeal brief.

Status of Amendments

There have been no amendments to the claims.

Summary of Claimed Subject Matter

The claimed invention as set forth in Claim 1 is described in the application text at Page 2, Line 1 to Page 4, Line 18. The claimed invention as set forth in Claim 1 is a process for separating colour bodies and/or asphaltenic contaminants from a hydrocarbon mixture using a membrane having a feed side and a permeate side, by contacting the hydrocarbon mixture with the feed side of the membrane, wherein between the feed side and permeate side of the membrane a pressure difference is applied, thereby passing part of the hydrocarbon mixture from the feed side to the permeate side and obtaining at the permeate side of the membrane a hydrocarbon permeate having a reduced content of colour bodies and/or asphaltenic contaminants, and by removing the hydrocarbon permeate from the permeate side of the membrane, wherein during selected time intervals the removal of hydrocarbon permeate from the permeate side of the membrane is stopped so that the pressure difference over the membrane is temporarily substantially lowered, wherein during the process, a feed pressure level at the feed side is maintained at least as large as a permeate pressure level at the permeate side, so that the pressure difference is maintained at zero or greater.

Grounds of Rejection to be Reviewed on Appeal

As stated in the Final Rejection of October 4, 2007, Claim 1 was rejected under 35 USC §102, as being anticipated by Moller (WO 01/10540 A2)(“Moller”); and under 35 USC §103(a), as being unpatentable over Cederlof (WO 03/035803)(“Cederlof”) in view of Moller, or vice versa. Applicant hereby appeals these rejections.

Argument - The Rejection of Claim 1

Claim 1 was rejected under 35 USC §102, as being anticipated by Moller (WO 01/10540 A2)(“Moller”). Applicants respectfully traverses this rejection.

Moller teaches a filtration system with a permeable membrane, which filters a fluid by applying a forward pressure differential from the retentate to the permeate for driving fluid through the membrane in a filtering direction. Moller also teaches periodically backwashing the membrane by applying a backwards pressure differential from the permeate to the retentate to clean the membrane. (Moller, Page 1, Lines 2-10).

Moller also teaches a flow resistance means for the permeate which can be used while applying a backwards pressure differential during the backwashing phase to reduce the backwards flow of permeate. (Moller, Page 6, Lines 9-14).

Applicants’ independent claim 1, like Moller, is directed to a filtration system with a permeable membrane, which filters a fluid by applying a forward pressure differential from the retentate to the permeate for driving fluid through the membrane in a filtering direction. Applicants’ independent claim 1 also includes stopping the removal of the permeate during selected time intervals, so that the forward pressure differential from the retentate to the permeate is temporarily substantially lowered, but always maintained at a level of zero or greater in order to prevent backwashing.

Applicants taught against the use of a backwashing operation in the U.S. Patent Application Publication Paragraphs 10 and 11, as taught by Moller. Applicants have developed a simpler process to maximize forward fluid flow from the retentate to the permeate without the use of backwashing.

Applicants respectfully submit that Moller does not teach or suggest the desirability of stopping the removal of the permeate during selected time intervals, so that the forward pressure differential from the retentate to the permeate is temporarily substantially lowered, while maintaining the pressure difference at zero or greater, as taught by Applicants’ independent claim 1.

Claim 1 was also rejected under 35 USC §103(a), as being unpatentable over Cederlof (WO 03/035803)(“Cederlof”) in view of Moller, or vice versa.

Applicants respectfully submit that Cederlof does not remedy the defects of Moller discussed above, in that Cederlof also does not teach or suggest the desirability of maintaining the pressure difference at zero or greater. In addition, there would be no motivation to modify Moller with the teachings of Cederlof, as Moller teaches a backwashing operation which would not work if the pressure difference were maintained at zero or greater.

Lastly, Applicants respectfully submit that Cederlof does not qualify as prior art pursuant to 35 USC §103(c)(1), as both Cederlof and the present application have been the subject of ownership and assignment to "Shell Oil Company," from the time the earlier of the two inventions was made to the present day, and Cederlof is only prior art under 35 USC §102 (e), (f), or (g).

Applicant respectfully submits that the Examiner has failed to establish a prima facie case of obviousness of Claim 1 as set forth in MPEP Section 2142. Applicant requests that the Examiner withdraw the rejection to Claim 1.

Applicant requests that the rejection of Claim 1 be overturned.

CONCLUSION

The Applicant assert that the arguments presented above overcome the rejections of Claim 1.

Respectfully submitted,
Hendrik Schadenberg et al.

By William E. Hickman/
William E. Hickman
Registration No. 46,771
(713) 241-6082

P. O. Box 2463
Houston, Texas 77252-2463

CLAIMS APPENDIX

Listing of Claims

1. (Previously Presented) A process for separating colour bodies and/or asphaltenic contaminants from a hydrocarbon mixture using a membrane having a feed side and a permeate side, by

contacting the hydrocarbon mixture with the feed side of the membrane, wherein between the feed side and permeate side of the membrane a pressure difference is applied, thereby passing part of the hydrocarbon mixture from the feed side to the permeate side and

obtaining at the permeate side of the membrane a hydrocarbon permeate having a reduced content of colour bodies and/or asphaltenic contaminants, and by removing the hydrocarbon permeate from the permeate side of the membrane,

wherein during selected time intervals the removal of hydrocarbon permeate from the permeate side of the membrane is stopped so that the pressure difference over the membrane is temporarily substantially lowered,

wherein during the process, a feed pressure level at the feed side is maintained at least as large as a permeate pressure level at the permeate side, so that the pressure difference is maintained at zero or greater.

2. (Original) A process according to claim 1, wherein the membrane comprises a top layer made of a dense membrane and a support layer made of a porous membrane.

3. (Original) process according to claim 2, wherein the dense membrane is made from a polysiloxane such as a poly(di-methyl siloxane).

4. (Original) A process according to claim 3, wherein the pressure difference across the membrane is lowered by at least 20%.

5. (Original) A process according to claim 4, wherein the pressure difference across the membrane during separation is between 10 and 30 bar.

6. (Original) A process according to claim 5, wherein the pressure difference is lowered to 0 bar.

7. (Original) A process according to claim 6, wherein time periods of between 5 and 480 minutes of continuous separation across the membrane alternate with time intervals of between 1 and 60 minutes at which the removal of permeate is stopped.
8. (Original) A process according to claim 7, wherein the time interval at which the permeate removal is stopped is below 30 minutes.
9. (Original) A process according to claim 8, wherein the removal of hydrocarbon permeate from the permeate side is stopped at regular intervals.
10. (Original) A process according to claim 9, wherein the hydrocarbon permeate is removed from the permeate side of the membrane through a conduit including a permeate valve, which valve is closed during the selected time intervals so as to stop the removal of permeate.
11. (Original) A process according to claim 10, wherein the membrane is operated at a temperature of above 40.degree. C.
12. (Original) A process according to claim 10, wherein the membrane is operated at a temperature of above 65.degree. C.
13. (Original) A process according to claim 12, wherein the hydrocarbon mixture has an initial boiling point greater than 20.degree. C. and a 80% recovery point of less than 600.degree. C., determined by ASTM D2887.
14. (Original) A process according to claim 13, wherein the hydrocarbon mixture has an ASTM D1500 colour index of above 2.
15. (Original) A process according to claim 14, wherein the hydrocarbon mixture is a contaminated natural gas condensate or a contaminated refinery stream.
16. (Original) A process according to claim 15, wherein the hydrocarbon mixture is a liquid hydrocarbon feed from which light olefins are to be produced by thermal cracking, wherein the membrane forms part of a membrane separation unit in which the hydrocarbon permeate is removed from the permeate side of the membrane, and wherein a retentate is removed from the retentate side of the membrane, and wherein the process further comprises the steps of: (a)

supplying the permeate to the inlet of a cracking furnace, allowing the permeate to crack in the coils of the cracking furnace in the presence of steam at elevated temperature and removing from the cracking furnace a cracked stream which is enriched in light olefins; (b) quenching the cracked stream; (c) supplying the cooled cracked stream to a fractionation column; (d) removing the retentate, preferably by supplying it to the fractionation column or to a crude distiller; and (e) removing from the top of the fractionation column a gaseous stream, from the side of the fractionation column a side stream of fuel oil components and from the bottom of the fractionation column a bottom stream.

EVIDENCE APPENDIX

There is no additional evidence relied upon by the Appellants in the Appeal.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings.